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TRADE AND ENVIRONMENT A REVIEW OF CONTEMPORARY QUESTIONS INTERCONNECTING INTERNATIONAL TRADE AND ENVIRONMENTAL REGULATIONS

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ABSTRACT

As the global community entered the Paris Climate Deal, link between Environmental Regulations as well as Trade Negotiations occupied prime importance to fulfil the Paris Deal commitments. Should there be an International Cooperation over Domestic Policies, especially since Environmental Regulations can potentially serve as Disguised Trade Barriers? Does International Trade weaken Domestic Environmental Policy, and creates Pollution Havens? Should trade policy be used to achieve environmental objectives? This paper reviews existing theoretical literature on such policy questions and analyses Environmental Economics literature pertaining to India

Introduction

2015 was a milestone year for Climate Activists demanding mainstreaming of the idea of "Sustainability" in Development - countries adopted the Paris Climate Deal. The Paris Agreement of 2015 decisively expressed an in-principal commitment to strengthening the global response to climate change, including "holding the increase in the global average temperature to well below 2°C above pre-industrial levels, increasing the ability to adapt to the adverse impacts of climate change, foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production". As part of their commitments, parties to the Paris Agreement are obliged to undertake and communicate ambitious efforts in the form of nationally determined contributions to achieve the goals of the agreement. It is therefore expected that all future domestic regulations as well as trade negotiations will have an underlying objective of fulfilling the Paris Deal commitments. In this context, the link between Environmental Regulations as well as Trade Negotiations occupies prime importance. This paper reviews relevant discussions involving contemporary theories interconnecting International Trade and Environmental Regulations.

Should there be an International Cooperation over Domestic Policies? Case in point – Potential use of Environmental Regulations as Disguised Trade Barriers

The most direct means of affecting trade flows is through trade policy. However, when countries are constrained in their ability to set trade policy freely (e.g., by an international trade agreement), domestic policies act as a potential means of trade protection measure (Second-Best Arguments). These Second-Best Arguments provide theoretical justification for international cooperation over domestic policy. That is, there is merit in requiring countries' domestic policies to conform to international standards, in order to provide a level playing field. A free trade agreement that restricts only a subset of instruments is an incomplete contract that can be undermined as governments substitute towards unconstrained instruments.

Gawande (1999) finds evidence that governments do substitute nontariff barriers for other instruments of protection, suggesting that the concern about loopholes in trade agreements is well founded. In this context, the option of manipulating environmental policy to improve the terms of trade creates a loop- hole in the trade agreement.

Lax Environmental standards provide an unfair comparative advantage to domestic countries, which distorts the level playing field. However, Bhagwati and Srinivasan (1996) dismiss this argument as a misunderstanding of the principle of Comparative Advantage, claiming that there are legitimate reasons for diversity in environmental regulations across countries (e.g., differences in preferences, natural endowments, or population density), and that differences in comparative advantage arising from regulatory differences are part of the argument for mutually beneficial trade.

Copeland (1990) however justifies expanding international trade agreements to cover domestic policies on Environmental Regulation, as such domestic policies often act as Secondary means of Protection. Trade liberalization induces substitution toward the less efficient, non-negotiable instrument of protection (secondary trade barrier such as non-tariff barriers or domestic legislation) due to countries' incentives to maintain levels of protection. Signing a free trade agreement limits the instruments of protection available, but does not eliminate the pressure on the government to protect (Copeland and Taylor, 2004). If the government has access to instruments that can substitute for trade policy, then they can be used to undermine a trade agreement.

According to Ederington & Minier (2003), as countries ratify agreements constraining their ability to pursue trade goals through trade policy, there will be unilateral incentives for governments to distort domestic policies as a secondary means of protection. One of the ways of decreasing imports within an industry is to relax Environmental standards (or other domestic regulation) in that industry.

However, while lax regulatory standards may be unilaterally optimal, they are inefficient for the world economy (since they lead to a global loss of trade). Therefore, international cooperation over environmental policies that deters countries from relaxing their environmental standards as a trade barrier can lead to increased global welfare.

The theoretical understanding of the Second-Best Argument rests on the joint assumption that (i) domestic regulations act as potential means of manipulating trade flows; (ii) trade flows are in fact responsive to regulatory choices.

The early empirical evidence regarding these second-best arguments (i.e. empirical studies of environmental regulations and trade) however, has been unconvincing. If stringent environmental regulations are a major source of comparative disadvantage, then the most regulated industries should also have the highest levels of import penetration. There is little empirical support for this proposition. Thus, 'second-best' arguments for cooperation over environmental regulation were often dismissed as being of little practical importance.

But these earlier models estimated only a small effect of environmental regulations on trade flows because these studies treated the level of environmental regulation as exogenously determined, ignoring the possibility that trade considerations may itself play a role in the setting of environmental policy (Ederington & Minier 2003).

However, the recent empirical work on the second-best hypothesis argue that environmental regulations are set endogenously, and there exists anecdotal evidence, suggesting that concern with international competition has played a role in setting environmental regulation. There have been several instances from the US wherein special committees and Task Forces have been constituted with the stated goal of relaxing domestic regulations that adversely affected U.S. trade competitiveness.

Ederington & Minier (2003) argue that the endogeneity of environmental regulation may have biased downward previous estimates of the effect of environmental regulation on trade flows. For example, if countries tend to (endogenously) relax environmental regulation on those industries facing strong import competition, then net imports and the level of environmental regulation may appear to be only weakly correlated across industries, even if stringent environmental regulations are a major source of comparative disadvantage.

A parallel argument was put forth by Trefler (1993), who noted that estimates of the small impact of trade barriers on trade flows are biased because they ignore the theory of endogenous protection (that increased imports intensify lobbying for protection, leading to higher levels of protection). Similar to Trefler (1993), who examined the relationship between trade barriers and trade flows, Ederington & Minier (2003) examined the impact of environmental regulation on trade flows, by inculcating the Theory of Endogenous Protection in the Second-Best Proposition of Environmental Trade Protection.

They addressed this concern directly by estimating the impact of environmental regulations on net import levels while controlling for simultaneity between net imports and environmental policy. They found statistically significant results to support the proposition that countries distort levels of environmental regulation as a secondary trade barrier and hence, a means of providing protection to domestic industries when environmental policy is modelled endogenously. By modelling environmental policy endogenously, they also found that environmental policy has a much stronger impact on net import levels than previously reported. This finding provides strong grounds for an affirmative answer to the questions - whether international trade agreements include negotiations over environmental policy.

Does International Trade weaken Environmental Policy? The Tariff Substitution Effect, The Pollution Haven Hypothesis and the Environmental Kuznets Curve

1) Tariff Substitution Effect of Environmental Regulations

When environmental policy is used as a substitute for trade policy to help domestic firms compete with their foreign rivals, governments invariably weaken environmental regulations. Consequently, free trade may harm the environment because of an endogenous weakening of environmental policy. Copeland and Taylor (2004) refer to this motive as "Tariff Substitution", as environmental policy is substituting for the lack of available trade-policy instruments, typically because tariffs and quotas are constrained by trade agreements.

Governmental measures for environmental protection aimed at products (such as pesticide residues in food, taxes on the lead content of fuels, and product liability rules, etc) differ from those aimed at processes (such as water pollution discharge regulation, mining reclamation laws, tradeable permit programs, liability for hazardous waste damage, etc)

In the case of product regulation, a nation that adopts relatively stringent standards can prevent some of the adverse impacts on the competitiveness of its industry by restricting import competition. In the case of process standards, a nation with more stringent standards cannot unilaterally neutralize its industry's disadvantage in international competition (Copeland and Taylor, 2004).

Governments have an incentive to take advantage of product standards as a protectionist device, to protect local firms. To avoid this, trade agreements typically require a National Treatment Rule under which, countries are allowed to impose any environmental standards they choose, but the standards applied to foreign products should be no less stringent than that applied to local products. That is, a national treatment regime attempts to circumvent the protectionist tendencies by enforcing a non-discrimination rule.

In the case of product standards, there has been a gradual shift away from a pure national treatment regime to one that requires increased use of scientific evidence to justify environmental policies that impede trade. This may inhibit tariff substitution, but it reduces the flexibility of governments to implement their own environmental policy.

In the case of production-generated pollution, governments have retained more flexibility to adjust their environmental policy, but at the possible cost of increased tariff substitution. This is because explicit export subsidies are subject to countervail laws under the WTO, but the use of implicit subsidies by weakening environmental policy are not. One of the main reasons for this seeming inconsistency in the treatment of subsidies is that the informational requirements of determining the "correct" environmental policy are high.

Hence there exists a trade-off between two different objectives: closing loopholes in trade agreements by constraining the use of domestic policy instruments in an effort to prevent tariff substitution; and allowing governments flexibility to respond to local changes in local conditions and preferences with respect to their environmental policy (Copeland and Taylor, 2004).

Bagwell and Staiger's (2001) work on self-enforcing trade agreements throws fresh light on the trade-off between preventing tariff substitution and flexibility in implementing domestic environmental policy. If trade agreements are negotiations to allow market access to trading partners, and if these obligations bind, then they show that even if the trade agreement does not constrain domestic policy, it nevertheless removes tariff substitution motives. If each government maximizes its objective function subject to its market access commitments, then the solution is to minimize the cost of achieving those objectives. This eliminates the temptation to use environmental policy to reduce imports, since some other policy would have to be altered to counteract the negative effects on foreign market access.

2) The Environmental Kuznets Curve

The Environmental Kuznets curve hypothesizes is an inverse-U-shaped relationship between a country's per-capita income and its level of environmental quality. An increase in income is associated with an increase in pollution in poor countries, but a decline in pollution in rich countries. The EKC helps prove the point that that trade and growth may actually be good for the environment. If environmental quality is a normal good, increases in income brought about by trade or growth will both increase the demand for environmental quality and increase the ability of governments to afford costly investments in environmental protection.

Copeland and Taylor (2004) were however sceptical about the existence of a simple and predictable relationship between pollution and per-capita income (i.e. EKC). The EKC estimation ignores national characteristics such as factor endowments, technologies and trading opportunities (comparative advantage and current trade restrictions) and reduces this set of possible explanatory factors to essentially just one- incomes per capita.

Despite its limitations, the EKC has provided convincing evidence that there is an income effect that raises environmental quality. Moreover, there are strong indications that this income effect works because increases in the stringency of environmental regulation accompany higher per-capita incomes. Therefore, an analysis of the effects of trade and growth on the environment cannot proceed without taking into account endogenous policy responses (this insight was also incorporated by Ederington & Minier (2003), in their analysis discussed above)

While the link between income growth and the environment is important, trade may alter environmental outcomes through a variety of other channels. Trade may encourage a relocation of polluting industries from countries with strict environmental policy to those with less stringent policy. These shifts may in turn increase global pollution and they may have a chilling effect on environmental policy, as countries will be reluctant to tighten environmental regulations because of concerns over international competitiveness.

3) Environmental Race to the Bottom - The Pollution Haven Effect and the Pollution Haven Hypothesis

A tightening up of pollution regulation tends to have an effect on plant location decisions and trade flows (Pollution Haven Effect). Further, a reduction in trade barriers often lead to a shifting of pollution-intensive industry from countries with stringent regulations to countries with weaker regulations (Pollution Haven Hypothesis). The pollution haven hypothesis predicts that countries with relatively weak environmental policy will specialize in dirty-industry production. While empirical evidence for the existence of a pollution haven effect exists, there is little convincing evidence, to support the pollution haven hypothesis.

Copeland and Taylor (2004) via a hypothesized model concluded that pollution rises in the country with weak pollution policy (often low-income countries), and falls in the country with strict pollution policy (often high-income countries). Trade induced by pollution policy differences creates a pollution haven in the country with weaker policy. The welfare effects of such trade depend on the stringency of pollution policy. If pollution policy is too weak, high-income country must gain from trade, both because of an increase in purchasing power and because of the fall in pollution. Low-income country, however, may lose. Its income rises, but so does pollution. And if externalities are not fully internalized, the increase in pollution is harmful to the low-income country.

The conclusions here are also consistent with some criticisms of free trade. High-income country gains from trade by offloading some of its polluting production onto the low-income nation. Moreover, because the dirtiest industry is shifted to the parts of the world with weaker environmental policy, this "global composition effect" tends to raise world pollution.

Mani and Wheeler (1997) examined the production and consumption of dirty goods for several developing-country regions plus Europe, North America, and Japan over the 1965-95 period and found a pattern of evidence which does seem consistent with the pollution haven story. Pollution-intensive output as a percentage of total manufacturing has fallen consistently in the OECD and risen steadily in the developing world. Moreover, the periods of rapid increase in net exports of pollution-intensive products from developing countries coincided with periods of rapid increase in the cost of pollution abatement in the OECD economies.

Can Trade Policy be used as a substitute for Environmental Policy i.e Should trade policy be used to achieve environmental objectives?

Because trade has the potential to increase pollution, the question of whether trade restrictions should be used to deal with the general issue of trade-induced increases in pollution merits a discussion. Further, there are many issues where people in one country want to achieve an environmental objective in another country (Eg- proposals to ban tropical timber imports to protect rain forests, banning of tuna imports into the United States from Mexico to protect dolphins, etc).

Trade restrictions are not a first-best instrument to deal with environmental problems. While Trade Barriers limit the extent of pollution, they are harmful as standard gains from trade are lost.

According to Dixit (1985), if pollution policy fully internalizes externalities, the optimal tax on trade is zero. Rather than using trade barriers, countries can more effectively control environmental problems with instruments that are finely tuned to deal with the source of the problem, such as pollution taxes or quotas. If, however environmental policy does not fully internalize externalities, then trade policy can be used as a second-best instrument to control pollution.

Copeland (1994) was also critical of the use of trade policy for environmental ends. Given the complicated general equilibrium effects of trade liberalization determining the optimal second-best trade policy to avoid environmental damage can be quite complicated in itself. He further adds that even if environmental policy is imperfect, trade may still be beneficial. This is so because the welfare results of trade liberalization depend on both a country's comparative advantage and the instruments it uses for environmental protection. If a country has a comparative advantage in dirty goods, then the welfare impact of free trade depends on whether imperfect regulation targets emission intensities or overall pollution. If it is the former, losses can occur; if it is the latter, gains are assured. Alternatively, if a country has lax regulation but a comparative advantage in clean goods, then trade is necessarily welfare improving because it takes pressure off the environment.

An analysis of the Environmental Economics literature pertaining to India

Mukhopadhyay & Chakraborty (2006) evaluated the impact of international trade on emissions of CO2, SO2, NO2 for the Indian economy during 90s using Input-Output techniques. They concluded that India produces goods that are more environment friendly than goods it imports, thus challenging the pollution haven hypothesis for India. Sharma & Rana (2017) examined the causality relationships between FDI, (GDP) and CO2 emissions along with the level of trade (exports and imports) taking place in India and concluded the existence of both Pollution Haven Hypothesis and Environmental Kuznets Curve hypothesis in India.

Not much empirical work is available estimating the extent of overlap between Environmental Regulations and International Trade in India. Lack of a market for environmental goods as well as an absence of well-defined property rights complicate the Environmental Policy making.

Lack of data, especially on abatement costs, serves as a major hindrance in empirical analysis of the impact of environmental regulations on trade movements. There is a need to publish a comprehensive periodical survey of the technological solutions adopted by most polluting sectors in the economy, in order to get a better idea of the true abatement costs faced by import competing sectors.

India's policy framework concerning the environment, is an aggregation of a variety of uncoordinated sources relating to discrete environmental topics such as pollution, water, energy, transport, waste management, agriculture, mining, forests, environmental clearance, finances, etc. India strongly needs a comprehensive policy document with a new vision to guide it forward in responding to the rapidly changing landscape of trade negotiations.

India's domestic policy making is further complicated by the country's federal structure wherein the legislative domains of the central government and the state government are distinct. While trade policy is almost exclusively determined by central governments, much of environmental policy is set at the local, regional, or state level. Therefore, in order to put into place, the terms of trade motivation for altering environmental policy a great deal of coordination between different levels of government is needed. Moreover, since states, regions, and even cities differ greatly it is not clear this cooperation would be forthcoming since their constituents may well be hurt by a price change that at the national level, would be welfare improving. India's domestic environmental policy urgently needs a coherent vision for tackling complex trade negotiations, that should be clearly reflected in the framing of legislation and policy documents addressing multiple sectors and aligned with multiple federal levels.

A new domestic environmental policy must result from a collaborative and democratic exercise that actively seeks and incorporates inputs from policymakers, natural and social scientists, the academic community, civil society and communities from across the country. Stakeholder engagement must be based on equitable terms, with due recognition and compensation for the utilisation of the local participants' knowledge, research, time and resources. The role of villages, cities and states in co-creating India's environmental policy must be explicitly endorsed and promoted.

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